

What is claimed is:

1. An integrated circuit comprising a thermal sensor, an A-D converter coupled to the thermal sensor, wherein the thermal sensor provides an input to the A-D converter, and the A-D converter converts the input to a digital value representative of the thermal environment of the thermal sensor.
2. An integrated circuit as claimed in claim 1 wherein the thermal sensor comprises at least one diode.
3. An integrated circuit as claimed in claim 2 wherein the thermal sensor comprises a plurality of diodes wherein each diode in the plurality is coupled in series.
4. An integrated circuit as claimed in claim 3 wherein the plurality of diodes comprises three diodes.
5. An integrated circuit as claimed in claim 1 further comprising a plurality of thermal sensors and select logic circuitry for selectively coupling the plurality of thermal sensors to the A-D converter.
6. An integrated circuit as claimed in claim 5 wherein the plurality of thermal sensors are positioned on the integrated circuit in accordance to at least one predetermined criteria.

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7. An integrated circuit as claimed 6 wherein a predetermined criteria is sensitivity to thermal resistance.
- 5 8. An integrated circuit as claimed in claim 1 further comprising a processor and power management circuitry electrically coupled to the A-D converter, the processor for receiving the data value from the A-D converter, and providing feedback from the processor to the power management circuitry.
- 10 9. An integrated circuit as claimed in claim 8 further comprising storage circuitry coupled between the A-D converter and the processor for storing the digital value.
- 15 10. An integrated circuit as claimed in claim 8 further comprising communication circuitry coupled to the A-D converter for communicating the digital value to the processor.
- 20 11. A method for managing an integrated circuit comprising the steps of:
- collecting a data value at a location on an integrated circuit wherein the data value has a predetermined functional relationship to the temperature at the location; and
- 25 converting the data value to a value representative of the thermal environment of the location on the integrated circuit.
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12. A method for managing an integrated circuit, as  
claimed in claim 11 further comprising the step of  
comparing the data value to a known predetermined  
value to determine problems associated with the  
integrated circuit.
13. A method as claimed in claim 11 wherein said  
collecting step comprises monitoring a thermal sensor  
for providing the data value that is representative of  
the temperature at the location.
14. A method for an integrated circuit, as claimed in  
claim 11 further comprising the step of providing the  
data value to a processor to provide feedback to the  
integrated circuit wherein the purpose of the feedback  
is to change a parameter of the integrated system in a  
predetermined manner.
15. A method as claimed in claim 14 further comprising the  
step of adjusting the power supplied to a section of  
the integrated circuit at the location in a  
predetermined manner in response to the feedback.
16. A method as claimed in claim 14 further comprising the  
step of adjusting the temperature at the location on  
the integrated circuit in a predetermined manner in  
response to the feedback.

17. A method as claimed in claim 12 further comprising the step of determining the location of a defect in the integrated circuit at the location from comparing the data value to a known predetermined value.